Suisun Marsh Monitoring Program
Channel Water Salinity Report

Reporting Period: March 2007

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1. SUISUN MARSH MONITORING STATIONS AND REPORTING REQUIREMENT

As per SWRCB Water Rights Decision 1641, dated December 29, 1999, and previous SWRCB decisions, the California Department of Water Resources (DWR) is required to provide monthly channel water salinity compliance reports for the Suisun Marsh to the SWRCB. Conditions of channel water salinity in the Suisun Marsh are determined by monitoring specific electrical conductivity, which is referred as "specific conductance" (SC). The locations of all listed stations are shown in Figure 5.

The monthly reports are submitted for October through May each year in accordance with SWRCB requirements. The reports are required to include salinity data from the stations listed below to ensure salinity standards are met to protect habitat for waterfowl in managed wetlands:

Station Identification	Station Name	General Location	Classification
C-2*	Collinsville	Western Delta	Compliance Station
S-64	National Steel	Eastern Suisun Marsh	Compliance Station
S-49	Beldon's Landing	North-Central Suisun Marsh	Compliance Station
S-42	Volanti	North-Western Suisun Marsh	Compliance Station
S-21	Sunrise	North-Western Suisun Marsh	Compliance Station

Data from the stations listed below are included in the monthly reports to provide information on salinity conditions in the western Suisun Marsh.

Station Identification	Station Name	General Location	Classification
S-97	Ibis	Western Suisun Marsh	Monitoring Station
S-35	Morrow Island	South-Western Suisun Marsh	Monitoring Station

Information on Delta outflow, area rainfall, and operation of the Suisun Marsh Salinity Control Gates are also included in the monthly reports to provide information on conditions that may affect channel water salinity in the Marsh.

* Throughout the report, the representative data from nearby USBR station is used in lieu of data from station C-2.

2. Monitoring Results

2.1 Channel Water Salinity Compliance

During the month of March 2007, salinity conditions at all five compliance stations are in compliance with channel water salinity standards of SWRCB (Table 1). Compliance with standards for the month of March was determined for each compliance station by comparing the progressive daily mean of high-tide SC with respective standards. During March, the standard for compliance stations C-2, S-64, S-49, S-42, and S-21 were 8.0 mS/cm. Table 1 lists monthly mean high-tide SC at these compliance stations. The progressive daily mean (PDM) is the monthly average of both daily high-tide SC values. The mathematical equation is shown below.

$$\text{PDM} = \frac{\sum \text{daily average of high tide SC}}{\text{\# days of the month}}$$

2.2 Delta Outflow

Outflow for March 2007 started off high above 35,000 cfs, then decreased down quickly through mid-March before stabilizing around 10,000 cfs in late March, and for the rest of the month. Outflow for March 2007 was very low due to minimal amount of precipitation throughout the entire month. There were only two days of small rainfall activities, and the two days combined total was 0.11 inches for the entire month. The monthly Delta outflow is represented by the mean Net Delta Outflow Index (NDOI). The NDOI is the estimated daily average of Delta outflow. Mean NDOI for March 2007 is listed below:

Month	Mean NDOI (cubic feet per second)
March	15,835

2.3 Rainfall

Rainfall activities in March were very low. The monthly total was four times less than previous month. Rainfall occurrences were observed only on two days, March 17 and 28, with the two day combined total of 0.11. This total was also the monthly total. The monthly total is shown below.

Month	Total Rainfall (inches)
March	0.11

2.4 Suisun Marsh Salinity Control Gate (SMSCG) Operations

Operations and flashboard/boat lock installations at the SMSCG during March 2007 is summarized below.

Date	Gate status	Flashboards status	Boat Lock status
March 1 - 31	3 OPEN	IN	Open

SMSCG operations ceased during March with flashboards remain installed and boat lock open. DWR will continue to monitor salinity levels throughout the marsh and operate the gates, if needed, to control salinity

3. Discussion

3.1 Factors Affecting Channel Water Salinity in the Suisun Marsh

Factors that affect channel water salinity levels in the Suisun Marsh include:

- delta outflow;
- tidal exchange;
- rainfall and local creek inflow;
- managed wetland operations; and,
- operation of the SMSCG and flashboard configurations.

3.2 Observations and Trends

3.2.1 Conditions during the Reporting Period

During March 2007 PDM salinity levels at Collinsville(C-2), National Steel(S-64), Beldons (S-49), and Volanti(S-42) were all below 4.0 mS/cm as shown in Figure 1. Salinity at all stations was low coming into March due to the carry over effect of combined gate operations and high outflow in late February. All stations salinity levels began to rise in mid-March due to no gate operations and reduced outflow in mid-March, but the increase was at a small rate and salinity levels at all compliance stations were well below the monthly standard of 8.0 mS/cm. Salinity levels at the western monitoring stations, S97 and S35 were below 6.5 mS/cm throughout March as shown in Figure 2.

Overall, salinity levels in March 2007 were below standards at all compliance and monitoring stations.

S-21 (Sunrise Club) continues to be out of service since late December 2005 due to flooded event, thus S-21 station will not be reported in future reports until further notice. The SWRCB has granted DWR to continue using S42 as a surrogate station for S21 during the 2006-2007 control season while repair work is being done at S21 site.

3.2.2 Comparison of Reporting Period Conditions with Previous Years

Monthly mean high-tide SC at the compliance and monitoring stations for March 2007 were compared with means for those months during the previous nine years (Figure 4).

Mean salinity pattern of all compliance and monitoring stations is most comparable to the 2004 year, but at a higher level. Compared to previous nine years, March 2007 salinity levels were overall ranked second in high Specific Conductance, thus making it the eighth lowest salinity levels month.

Table 1

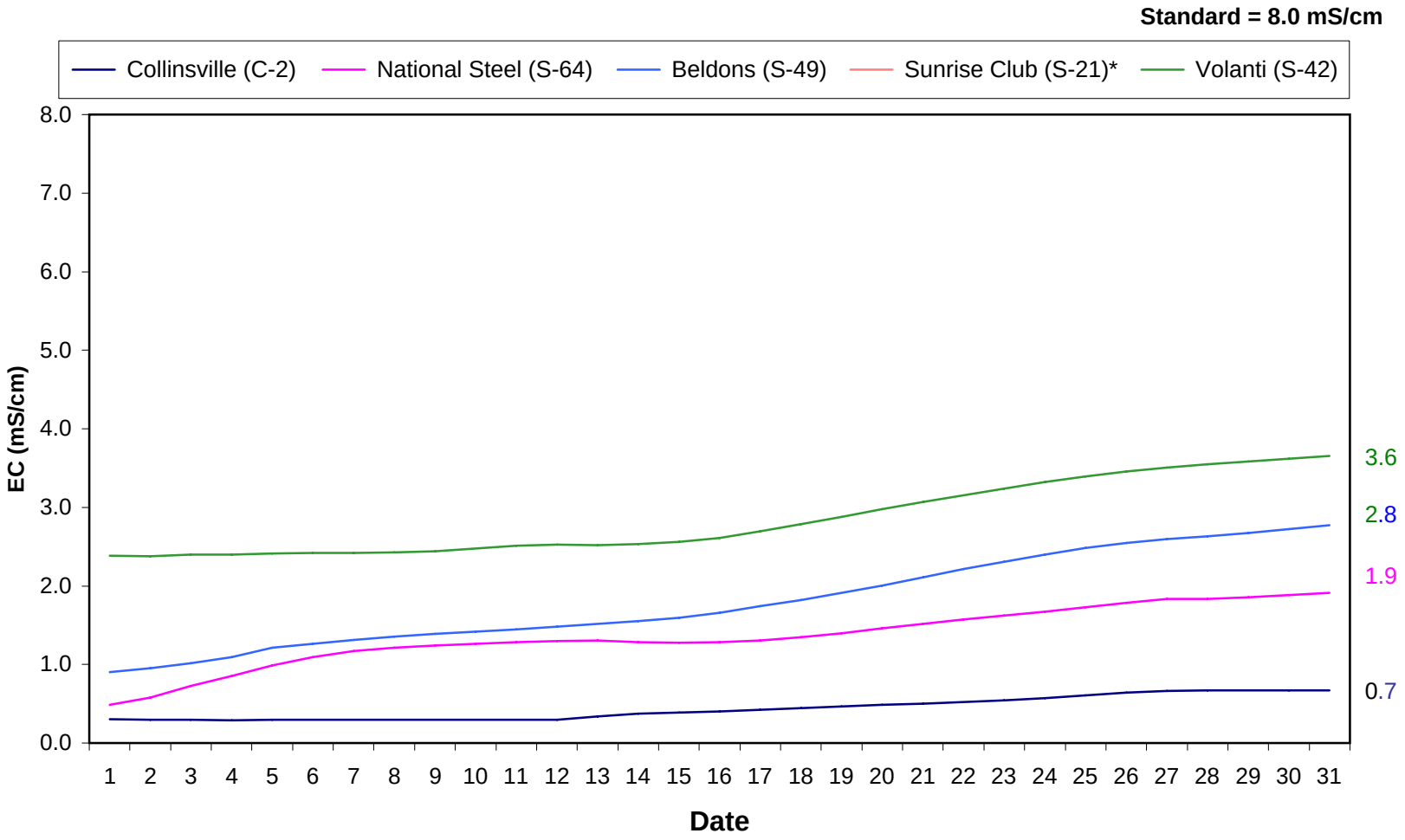
Monthly Mean High Tide Specific Conductance at Suisun Marsh Water Quality Compliance Stations

March 2007

Station	Specific Conductance (mS/cm)*	Standard	Standard meet?
C-2**	0.7	8.0	Yes
S-64	1.9	8.0	Yes
S-49	2.8	8.0	Yes
S-42	3.6	8.0	Yes
S-21***	n/a	n/a	n/a

*milliSiemens per centimeter
**The representative data from nearby USBR station is used in lieu of data from station C-2.
***station is temporarily out of service. The SWRCB has granted DWR to continue using S42 as a surrogate station for S21 during the 2006-2007 control season.

Figure 1. Suisun Marsh Progressive Mean High Tide Specific Conductance For Compliance Stations March 2007



*Data not available due to flooded roadways.

Figure 2. Suisun Marsh Progressive Mean High Tide Specific Conductance
For Monitoring Stations S-35 and S-97
March 2007

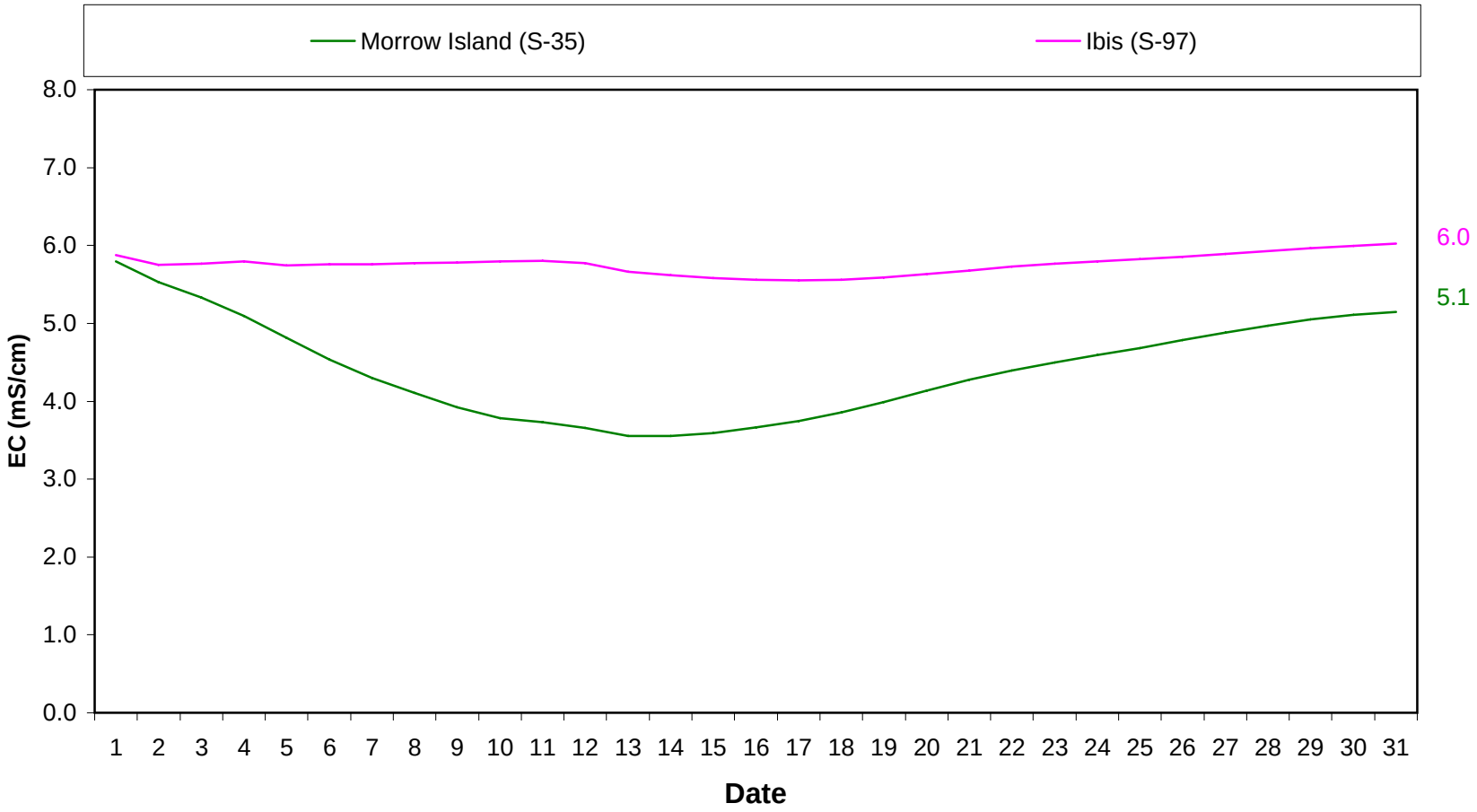
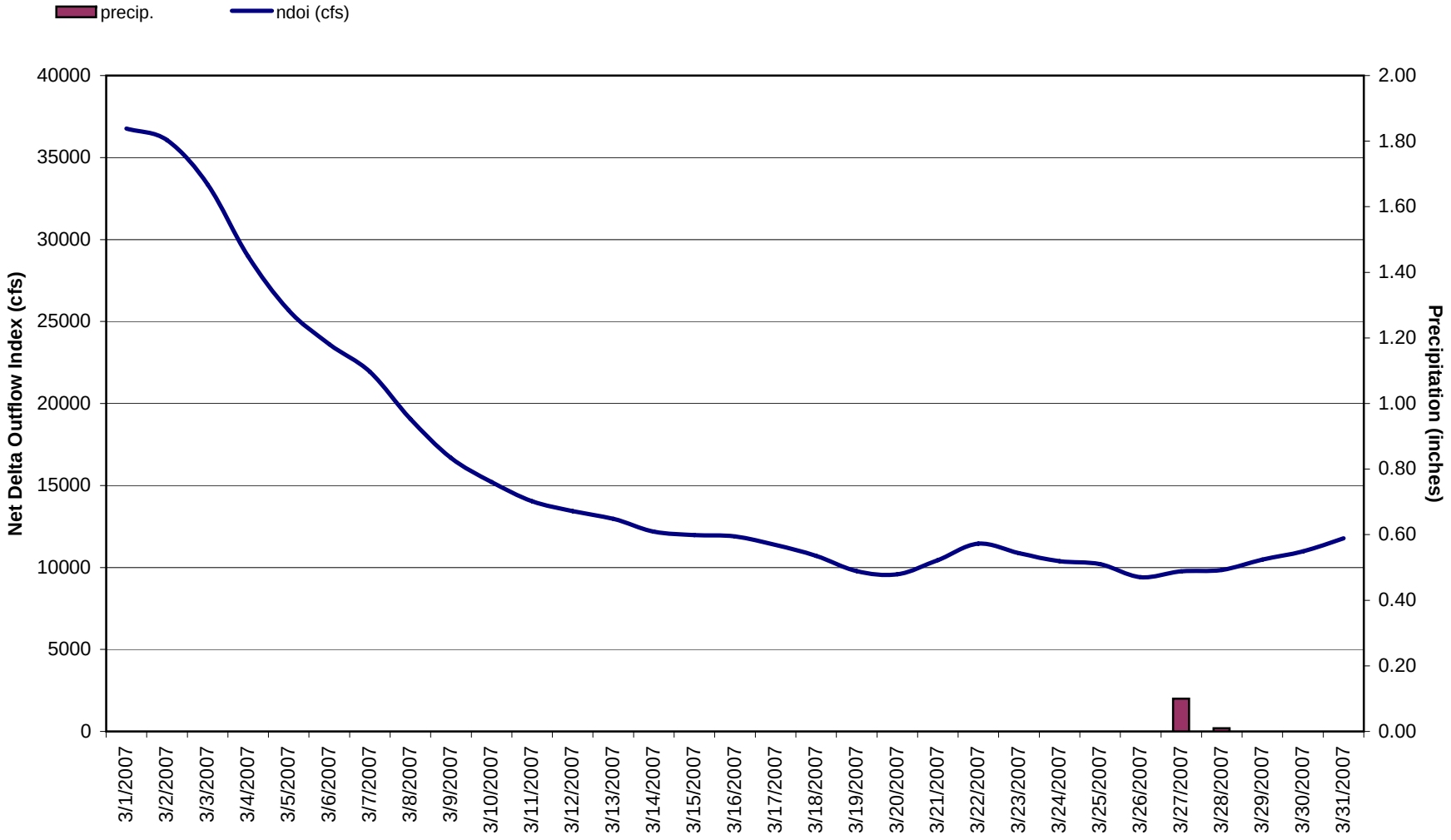
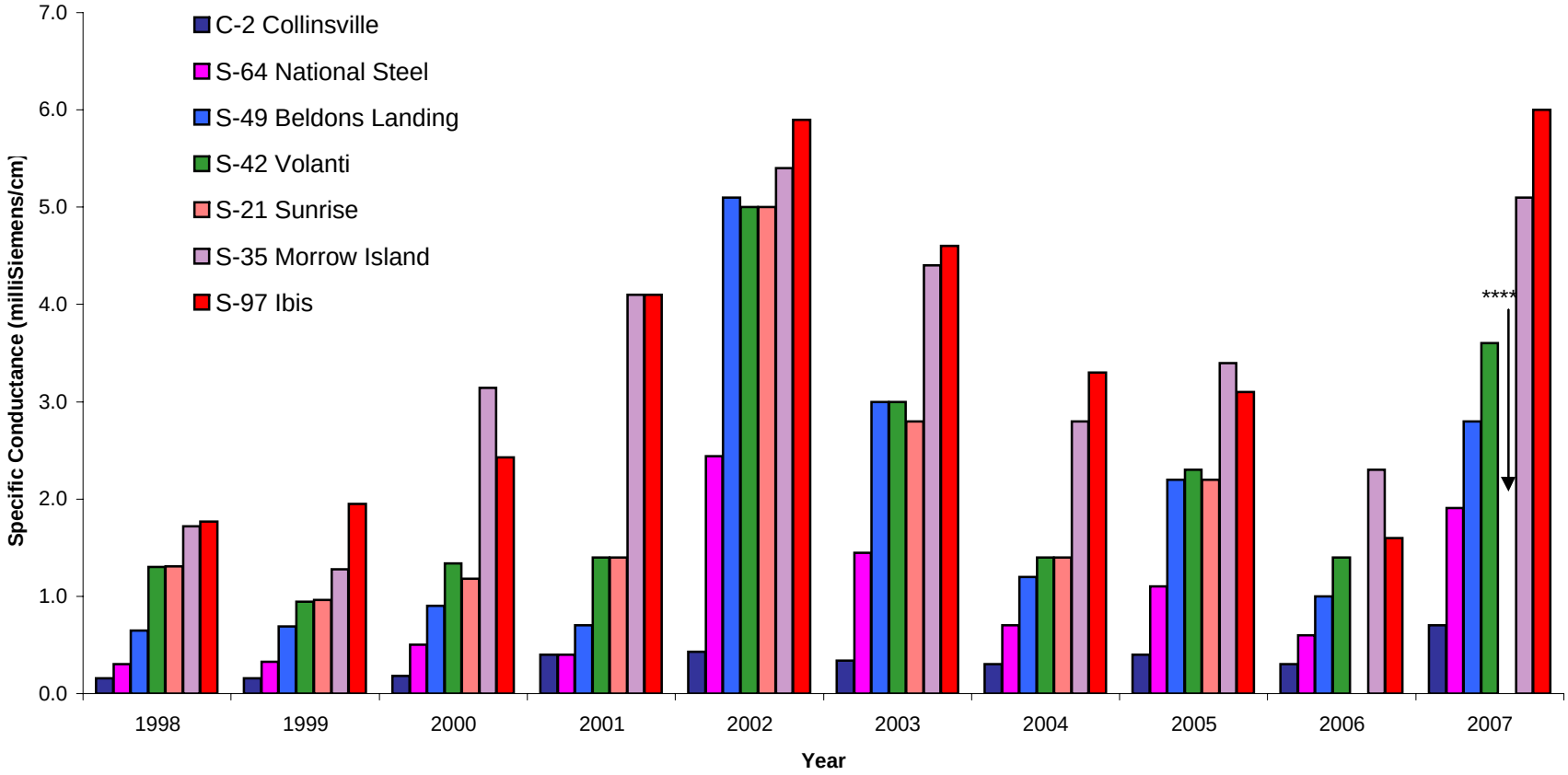


Figure 3. Daily Net Delta Outflow Index and Precipitation*
March 2007

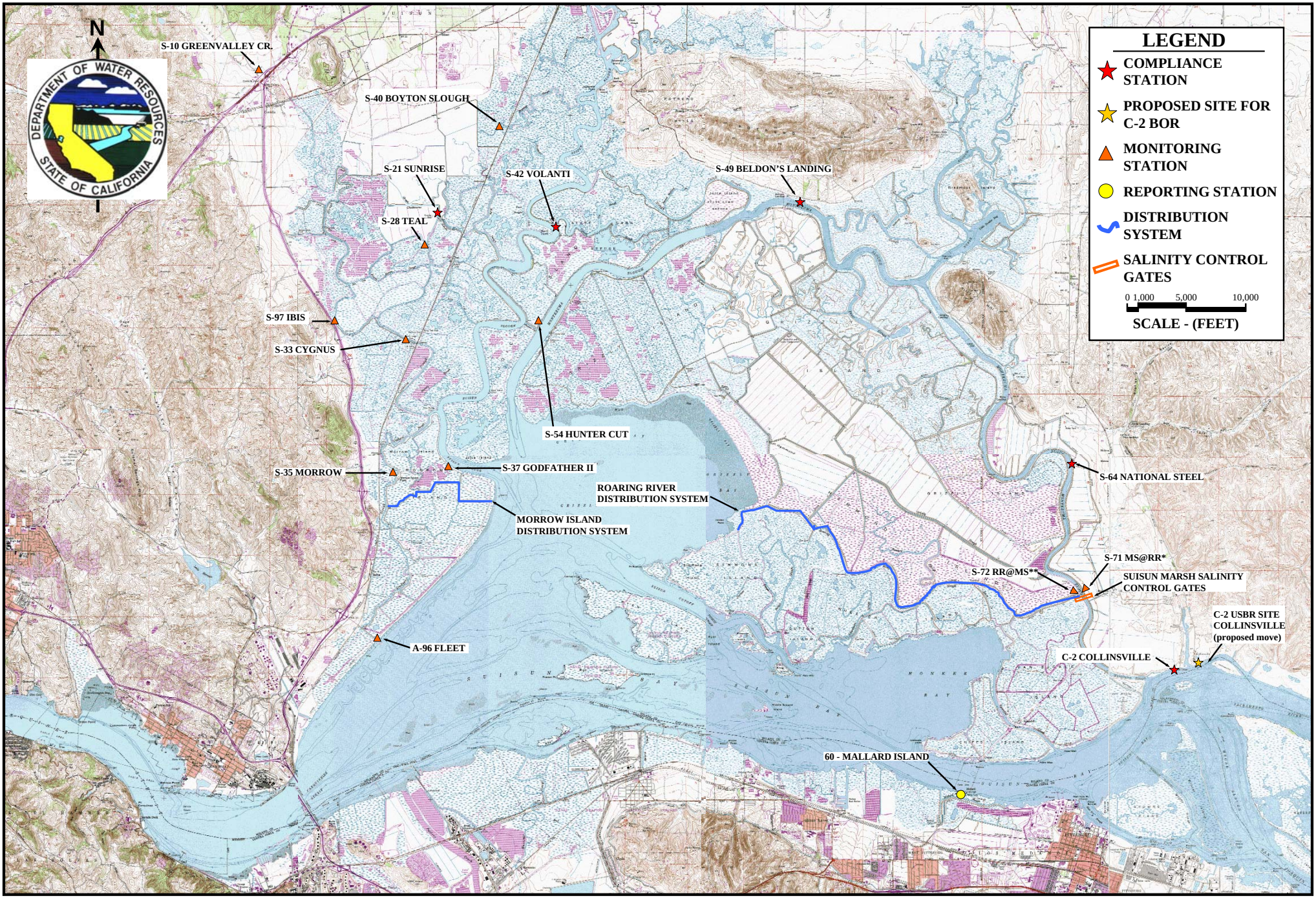


*Preliminary DWR, O&M Delta Outflow data and precipitation from Fairfield Water Treatment Plant.

Figure 4. Monthly Mean Specific Conductance at High Tide: Comparison of Monthly Values for Selected Stations March of 1998-2007



****Data not available for S21 due to flooded roadways.



SUISUN MARSH PROGRAM WATER QUALITY MONITORING AND CONTROL FACILITIES